



West Branch Sampling Plan Fact Sheet

The Grand Calumet River Restoration Fund (GCRRF) Council conducted sediment sampling in October 2002 to determine the extent of contamination in the Indiana portion of the West Branch of the Grand Calumet River west of Indianapolis Boulevard (West Branch). This effort will lead to the development of remedial and restoration alternatives for the West Branch.

The purpose of this Fact Sheet is to provide an overview of the West Branch sediment sampling plan dated September 2002. A full description of the West Branch sediment sampling plan can be found in the “Field Sampling and Analysis Plan” report, by Foster-Wheeler Environmental Corporation (now TetraTech EM). Copies of the report are located at the Hammond Public Library at the second floor reference desk and at the East Chicago Public Library. It can also be accessed on the internet at <http://www.in.gov/idem/land/federal/nrda/grandcalumet/index.html>.

Hammond Public Library
564 State Street, Hammond, IN 46320

East Chicago Public Library
East Columbus Drive, East Chicago, IN 46312

Sampling Goals

The goals of this study were to collect samples that will provide additional data about the topography along the West, the geotechnical characteristics of its sediments, contaminant concentrations in its sediments, and the extent of sediment toxicity. That information will be used to develop and analyze remediation and restoration alternatives to address impairments in the West Branch.

Sample Collection

Samples were collected from 6 reaches:

- Indianapolis Boulevard bridge to the I-90 bridge
- I-90 bridge to the Columbia Avenue bridge
- Columbia Avenue bridge to the Calumet Avenue bridge
- Calumet Avenue bridge to the Sohl Road bridge
- Sohl Road bridge to the Hohman Avenue bridge
- Railroad bridge west of Hohman to the Indiana/Illinois state line.

Because previous studies by the Northern Indiana Public Service Company (NIPSCO) provided sufficient data to characterize the reach between the Hohman Avenue bridge and the railroad bridge, no additional sampling was proposed there.

Types of Information Collected

- Survey - Profiles of the topography of the riverbed and banks including depth to the mudline, depth to sediment and the topography of the river bank were created. Topographic maps were drawn from the waterline up to a hard surface elevation (road or building) or 200 feet above the waterline if no such features existed. These characteristics will be used to determine the depth to clean sediment (e.g., native material) and develop remediation and restoration alternatives.
- Chemical Contaminant and Geo-technical Samples - Approximately 84 chemical contaminant and 20 geo-technical samples were tested from the West Branch. Two types of samples were collected for chemical analysis: surface water samples and sediment samples. See table 1 for more detail.

The geo-technical analyses will determine the physical properties of the sediments in order to evaluate:

1. dredging and capping methods,
2. dredged material transport and placement,
3. dredge material behavior in a disposal site,
4. potential short-term impacts at the dredge and disposal sites, and
5. capacity of existing sediments to provide foundation support for capping material.

Analysis of the sediment sampling was completed to determine the extent of sediment contamination. The

following methodology was used to collect the sediment samples:

1. Using a vibrocore (sample collection equipment), four-inch cores of sediment were removed from 51 sites (16 transects) throughout the six reaches of the West Branch being studied.
 2. The cores that were removed provided a fair representation of the sedimentation at each sampling site and reached native material; cores were proposed to be up to 12 feet deep, but this was adjusted according to site-specific conditions.
 3. Once collected, the cores were moved to a processing location, where samples were removed for analysis.
 4. Detailed records were kept throughout the sampling procedure. Documentation included a site log book, photo logs, sample log forms, field change request forms and sample tracking forms.
- Samples for Toxicological Testing - 42 samples were sent to the USGS laboratory in Columbia, MO for toxicological testing using *Hyalella azteca*. This data will be used in conjunction with the chemical data to determine which sediments cause impairments to benthic organisms.

Final Report

The final report will include the analytical results from samples collected, documentation compiled during this study, and a description of the methodology used. Quality assurance was conducted to identify field activities that deviated from the approved sampling plan and to evaluate the overall validity of data collected. When combined with the physical, chemical and toxicological data from Roxana Marsh, this information will provide the basis for developing remediation and restoration alternatives for the West Branch of the Grand Calumet River. The sampling results report is expected to be completed by late July, 2003.

Analyses Conducted

Table 1 below summarizes the types of tests that were planned to be conducted for each of the following types of analyses.

Table 1. Summary of Chemical Analyses Performed on Samples from the West Branch of the Grand Calumet River				
	Sediment Chemical Sampling	Combined Sediment- Surface Water Sampling	Surface Water Sampling	Bioassay Testing
Number of samples planned	84	4	TBD	42
Number of sites from which samples will be analyzed	42	composite	composite	42
Laboratory used for analysis	STL	CAS	STI	USGS
PCB Aroclors	X	x		
PCB Congeners	x			
Organochlorine Pesticides	x	x	x	
Semivolatile Organics	x	x	x	
Metals*	x	x	x	
Total Organic Carbon	x	x	x	
Oil & Grease	x			
AVS-SEM**	x			
Dissolved Organic Carbon			x	
Total Suspended Solids			x	
28-day survival and growth of <i>Hyaella azteca</i>				x
Laboratory abbreviations are as follows: STL: Severn Trent Laboratories (University Park, IL) CAS: Columbia Analytical Services (Kelso, WA) STI: Soil Technologies, Inc. (Bainbridge Island, WA) USGS: U.S. Geological Survey Biological Research Division (Columbia, MO)				
* Metals being evaluated include RCRA metals - Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, as well as Copper and Zinc				
** AVS-SEM stands for Acid Volatile Sulfides-Simultaneously Extracted Metals				